i) the epoxy component and the amine component are formed as separate liquids prior to forming the reactive mixture;

ii) the epoxy component and the amine component react together exothermically to produce heat; and

iii) the heat causes the thermoplastic shell filled with a solvent core to soften and expand due to gas pressure from said solvent core without addition of external heat;

providing the reactive mixture within an automotive body cavity contemporaneously with the formation of the mixture or shortly thereafter; and

allowing the reactive mixture to cure to form said foamed article wherein said foamed article is capable of substantial plastic deformation after curing without substantial loss of strength modulus and wherein said foamed article has a glass transition temperature greater than 200° F after such plastic deformation.

REMARKS

In the Office Action mailed May 9, 2002, the Examiner rejected claims 1-19. By way of the foregoing amendments and the version with markings to show changes attached hereto, applicants have amended claims 1 and 10 and added claim 20. The foregoing amendments are taken in the interest of expediting prosecution and there is no intention of surrendering any range of equivalents to which Applicant would otherwise be entitled in view of the prior art.

I. Claim Rejections

The Office Action of May 9, 2002 rejected claims 1-19 under 35 U.S.C. § 103 as being, "unpatentable over Hilborn et al, Harrison et al, Markhlouf and Wyceck [sic]", which are respectively have U.S. Patent Nos. 6,218,442, 6,376,564, 5,712,317 and 4,923,902. Applicant respectfully traverses such rejection and suggests that claims 1-19 are patentable as written. However, Applicant has amended independent claims 1 and 10 to add clarity to the methods in those claims.

The Office Action reads that, "Patentees [i.e., Hilborn et al., Harrison et al.,

been obvious to one skilled in the art to duplicate the claimed process since the prior art teaches all the steps of the claimed process are old in the art and provides the motivation to follow the claimed process." This statement is conclusory and ignores the language of the claims of the present application. In the case of In re Lee, 61 U.S.P.Q. 2d 1430, at 1435 (Fed. Cir. 2002), the federal circuit articulated the duty of the Patent Office in making an obvious rejection and stated:

> In finding the relevant facts, in assessing the significance of the prior art, and in making the ultimate determination of the issue of obviousness, the examiner and the Board are presumed to act from this viewpoint. Thus when they rely on what they assert to be general knowledge to negate patentability, that knowledge must be articulated and placed on the record. The failure to do so is not consistent with either effective administrative procedure or effective judicial review. The board cannot rely on conclusory statements when dealing with particular combinations of prior art and specific claims, but must set forth the rationale on which it relies.

As such, the Office Action fails to establish a prima facie case of obviousness.

The references of record do not discuss nor does the Office Action mention the provision of both "an epoxy component" and an "amine component" as recited in claims 1 and 10 wherein each of the components include "a thixotropic filler" prior to their combination. Such a recitation is clearly recited within claims 1 and 10 and the application specifically discusses the advantages of such a combination. For example, at Page 8, Lines 21-24, the application reads, "In a particularly preferred embodiment, the thixotropic filler is formulated in at least one, and potentially both the first or epoxy component an the second or amine component. This additive effectuates shear thinning or an increased viscosity at a zero shear rate and a decreased viscosity at a higher shear rate." Moreover, at Page 1, Lines 29-32, the application reads that shear thinning, "enables the material to flow more easily while being dispensed but then have flow minimally following dispensing. This shear thinning behavior can also assist with the development of a uniform, consistent foamed cell structure by allowing more effective foaming gas entrapment."

In addition to ignoring the above mentioned language, the Office Action also ignores the language in claims 1 and 10 suggesting the softening of a "thermoplastic

shell" by the "amine-epoxy exotherm" for the purpose of expansion. None of the references of record disclose such expansion. Moreover, such a methodology allows the expansion of the "admixture" without having to add "external heat", which is now specifically claimed in claims 1 and 10.

Applicants are of the opinion that the claims of the present application were allowable as originally written, however, Applicants have added language to claims 1 and 10 and have added one entirely new claim 20 to emphasize certain advantages disclosed in the application. Particularly, the amine component and the epoxy component have been recited as, "substantially liquid" in claims 1, 10 and 20 since shear thinning is more dramatically experienced in liquids. Moreover, it has also been surprisingly found that aramid pulp is particularly good at producing shear thinning and aramid pulp has been specifically claimed in claims 10 and new claim 20. In addition to the above, claims 10 and 20 now include language reciting the amine component as including a "cycloaliphatic amine curing agent". Advantageously, as discussed in the specification at Page 7, Lines 29-31, the recited curing agent provides increased "mechanical stability" to the articles made therewith. This advantage is further emphasized in claim 20, which specifically recites, "wherein said foamed article is capable of substantial plastic deformation after curing without substantial loss of strength modulus and wherein said foamed article has a glass transition temperature greater than 200° F after such plastic deformation."

In conclusion, the present application discloses and claims a methodology that is not disclosed, taught or suggested in the references of record and the Office Action has failed to set forth a prima facie case that the methodology is in the references of record. Moreover, the methodology provides advantages deserving of patent protection. Thus, the rejections of the Office Action should be withdrawn.

Conclusions

In view of Applicants' amendments and remarks, the Examiner's rejections are believed to be rendered moot. Accordingly, Applicants submit that the present application is in condition for allowance and requests that the Examiner pass the case to issue at the earliest convenience. Should the Examiner have any question or wish

to further discuss this application, Applicant requests that the Examiner contact the undersigned at (248) 593-9900.

If for some reason Applicants have not requested a sufficient extension and/or have not paid a sufficient fee for this response and/or for the extension necessary to prevent the abandonment of this application, please consider this as a request for an extension for the required time period and/or authorization to charge our Deposit Account No. 50-1097 for any fee which may be due.

Respectfully submitted,

Dated: 6-27, 2002

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

1. (Amended) A method for producing a foamed article, comprising the steps of:

providing an epoxy component [formulation], said epoxy component [formulation] comprising an epoxy resin, a blowing agent having a thermoplastic shell filled with a solvent core, and a thixotropic filler, said epoxy component being provided in a substantially liquid form;

providing an amine component [formulation], said amine component [formulation] comprising an amine and a thixotropic filler, said amine component being provided in a substantially liquid form; and

combining said epoxy component [formulation] and said amine component [formulation] to form a reactive mixture and allowing said thermoplastic shell filled with a solvent core to soften from amine-epoxy exotherm and then expand due to gas pressure from said solvent core without addition of external heat.

10. (Amended) A method for producing a foamed article, comprising the steps of:

providing an epoxy component, said epoxy component comprising an epoxy resin, [; providing] a thixotropic filler and [; providing] a blowing agent having a thermoplastic shell filled with a solvent core, the thixotropic filler being an aramid pulp, said epoxy component being provided in a substantially liquid form;

providing an amine component [formulation], said amine component [formulation] comprising [an] a cycloaliphatic amine curing agent and a thixotropic filler, the thixotropic filler being an aramid pulp, said amine component being provided in a substantially liquid form; and

combining said epoxy component [formulation] and said amine component [formulation] to form a reactive mixture and allowing said thermoplastic shell filled with a solvent core to soften from amine-epoxy exotherm and then expand due to gas pressure from said solvent core without addition of external heat.

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20. (New) A method for producing a foamed article, comprising the steps of:

providing a substantially liquid epoxy component that includes:

i) an epoxy resin;

ii) a blowing agent having a thermoplastic shell filled with a solvent core; and

iii) a thixotropic filler wherein the filler includes aramid pulp;

providing a substantially liquid amine component that includes:

i) a cycloaliphatic amine curing agent;

ii) an amine that is less reactive than the cycloaliphatic curing agent; and

iii) a thixotropic filler wherein the filler includes aramid pulp;

combining and dispensing said epoxy component and said amine component at around room temperature to form a reactive mixture wherein:

i) the epoxy component and the amine component are formed as separate liquids prior to forming the reactive mixture;

ii) the epoxy component and the amine component react together exothermically to produce heat; and

iii) the heat causes the thermoplastic shell filled with a solvent core to soften and expand due to gas pressure from said solvent core without addition of external heat;

providing the reactive mixture within an automotive body cavity contemporaneously with the formation of the mixture or shortly thereafter; and

allowing the reactive mixture to cure to form said foamed article wherein said foamed article is capable of substantial plastic deformation after curing without substantial loss of strength modulus and wherein said foamed article has a glass transition temperature greater than 200° F after such plastic deformation.